

X-LSM050A Datasheet



- 25, 50, 100, 150 and 200 mm travel
- Up to 104 mm/s speed and up to 55 N thrust
- Recirculating ball bearing design for high load (25 kg) and long lifetime
- Built-in controller; daisy-chains with other Zaber products
- Custom versions available

X-LSM Series Overview

Zaber's X-LSM Series devices are computer-controlled, motorized linear stages with high thrust and speed capabilities and a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply. An optional indexed knob provides convenient manual control for versatile operation even without a computer.

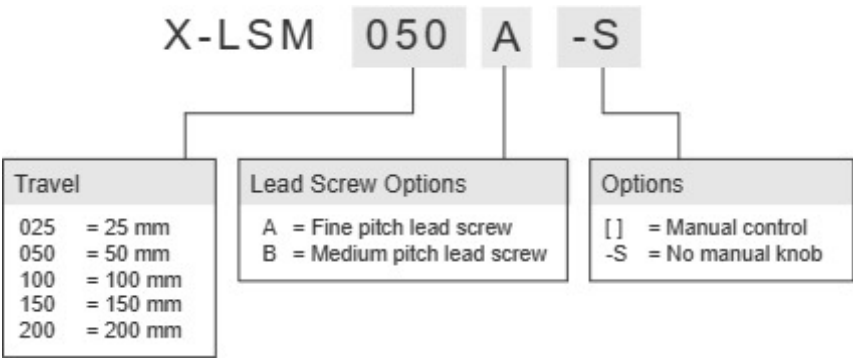
These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply. Convenient locking, 4-pin, M8 connectors on the unit allow for secure connection between units.

At only 21 mm high, these miniature stages are excellent for applications where a small profile is

required. The X-LSM's innovative design allows speeds up to 104 mm/s and loads up to 25 kg. Like all of Zaber's products, the X-LSM Series is designed to be 'plug and play' and very easy to set up and operate. If you are considering a multi-axis system, in the XY configuration, these stages make excellent microscope stages. Adding a X-JOY3 joystick controller allows manual control of both X and Y or XYZ axes from a single interface as well as allowing microscope stage positions to be saved and recalled at the touch of a button.

For more information visit: <https://www.zaber.com/products/linear-stages/X-LSM>

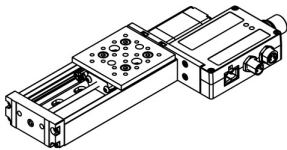
X-LSM Series Part Numbering



X-LSM050A Drawings

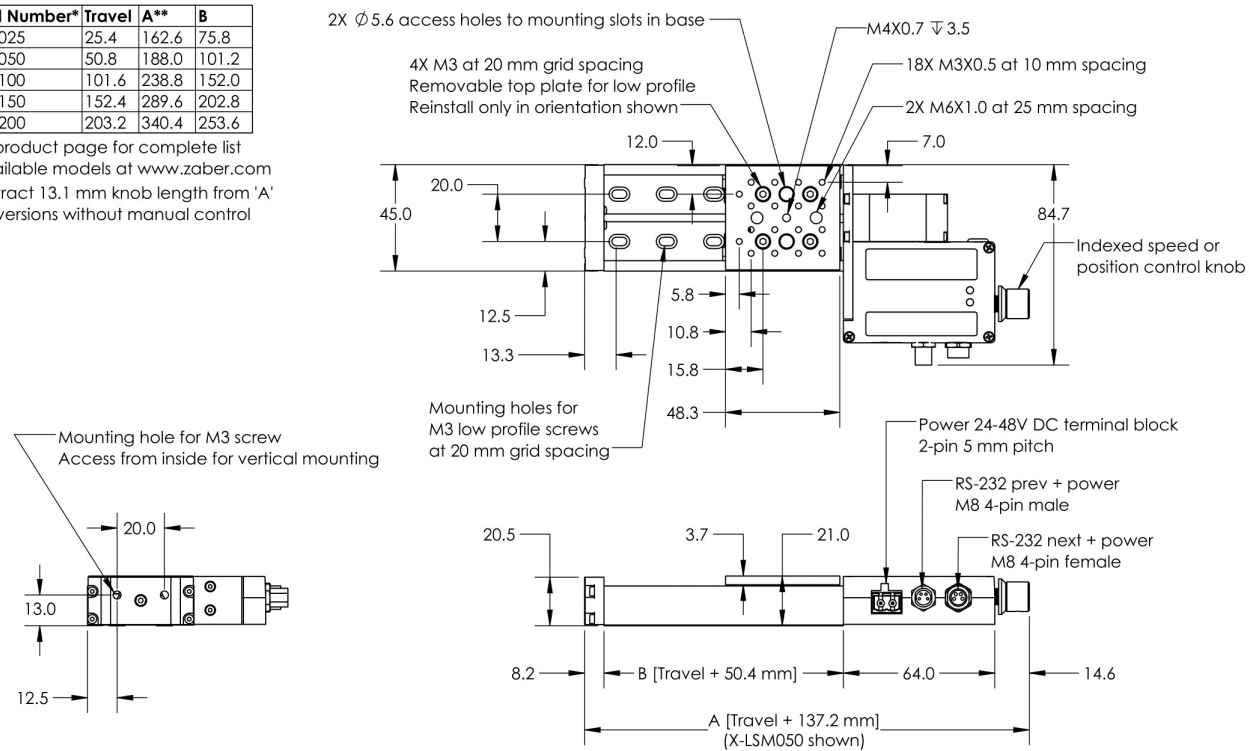
ZABER

X-LSM Miniature Motorized Linear Stage
dimensions in mm



Model Number*	Travel	A**	B
X-LSM025	25.4	162.6	75.8
X-LSM050	50.8	188.0	101.2
X-LSM100	101.6	238.8	152.0
X-LSM150	152.4	289.6	202.8
X-LSM200	203.2	340.4	253.6

*See product page for complete list of available models at www.zaber.com
**Subtract 13.1 mm knob length from 'A' for -S versions without manual control



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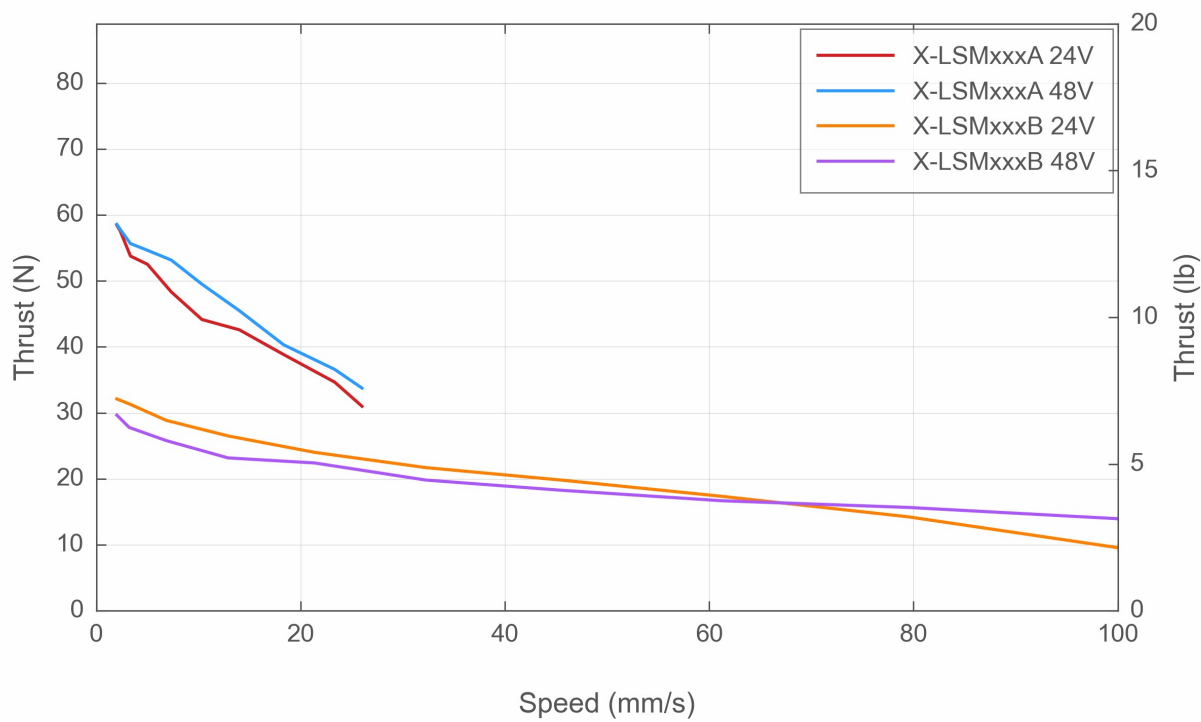
X-LSM050A Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.047625 μm	
Built-in Controller	Yes	
Travel Range	50.8 mm	2.000"
Accuracy (unidirectional)	20 μm	0.000787"
Repeatability	< 3 μm	< 0.000118"
Backlash	< 12 μm	< 0.000472"
Maximum Speed	26 mm/s	1.024"/s
Minimum Speed	0.000029 mm/s	0.000001"/s
Speed Resolution	0.000029 mm/s	0.000001"/s
Encoder Type	None	
Peak Thrust	55 N	12.3 lb
Maximum Continuous Thrust	25 N	5.6 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII (Default), Zaber Binary	
Data Cable Connection	Locking 4-pin M8	
Maximum Centered Load	250 N	56.1 lb
Maximum Cantilever Load	10 N-m	7.4 ft-lb
Guide Type	Recirculating ball bearing	
Vertical Runout	< 11 μm	< 0.000433"
Horizontal Runout	< 14 μm	< 0.000551"
Pitch	0.03°	0.523 mrad
Roll	0.03°	0.523 mrad
Yaw	0.03°	0.523 mrad
Stiffness in Pitch	150 N-m/°	116 $\mu\text{rad/N-m}$
Stiffness in Roll	150 N-m/°	116 $\mu\text{rad/N-m}$
Stiffness in Yaw	150 N-m/°	116 $\mu\text{rad/N-m}$
Power Supply	24-48 VDC	
Power Plug	2-pin Screw Terminal	
Maximum Current Draw	350 mA	
Linear Motion Per Motor Rev	0.6096 mm	0.024"

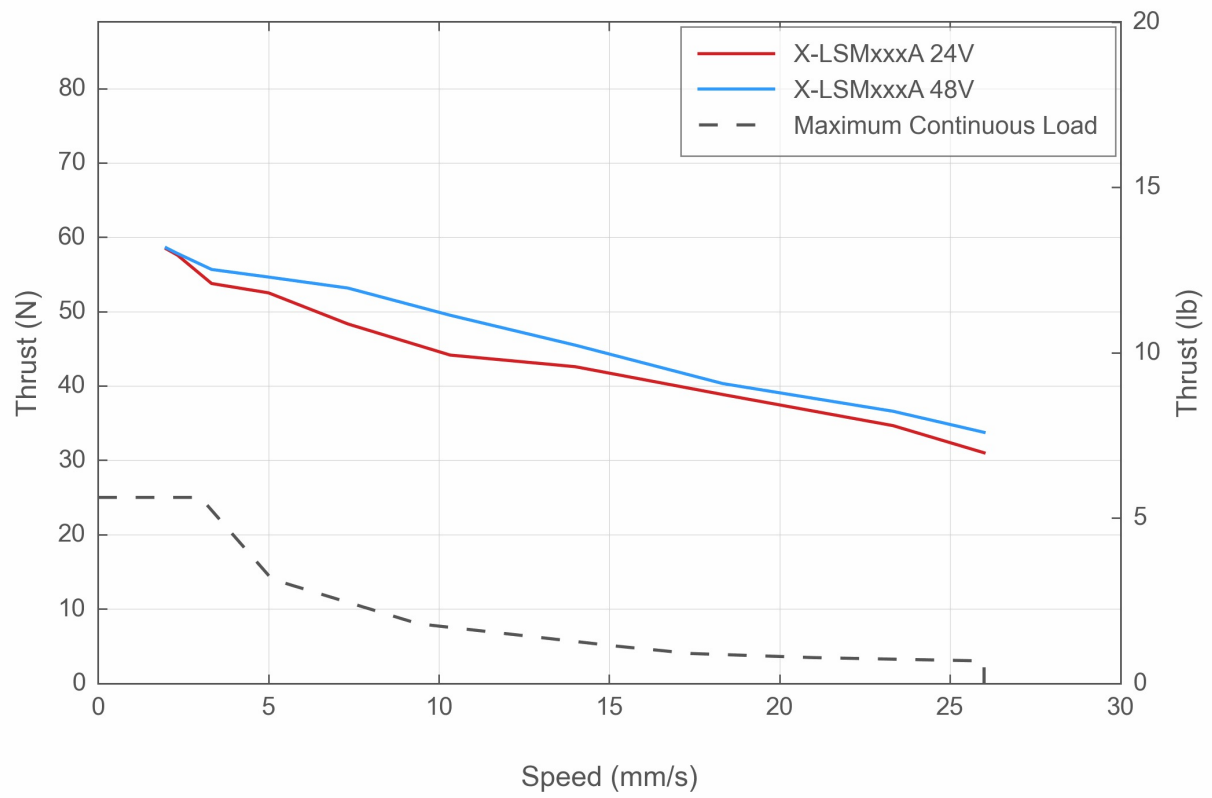
Specification	Value	Alternate Unit
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	600 mA/phase	
Inductance	3.5 mH/phase	
Default Resolution	1/64 of a step	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic hall sensor	
Manual Control	Yes	
Axes of Motion	1	
LED Indicators	Yes	
Mounting Interface	M3 and M6 threaded holes and M4 threaded center hole	
Stage Parallelism	< 25 μ m	< 0.000984"
Operating Temperature Range	0 to 50 °C	
RoHS Compliant	Yes	
CE Compliant	Yes	
Vacuum Compatible	No	
Weight	0.34 kg	0.750 lb

X-LSM Series Charts

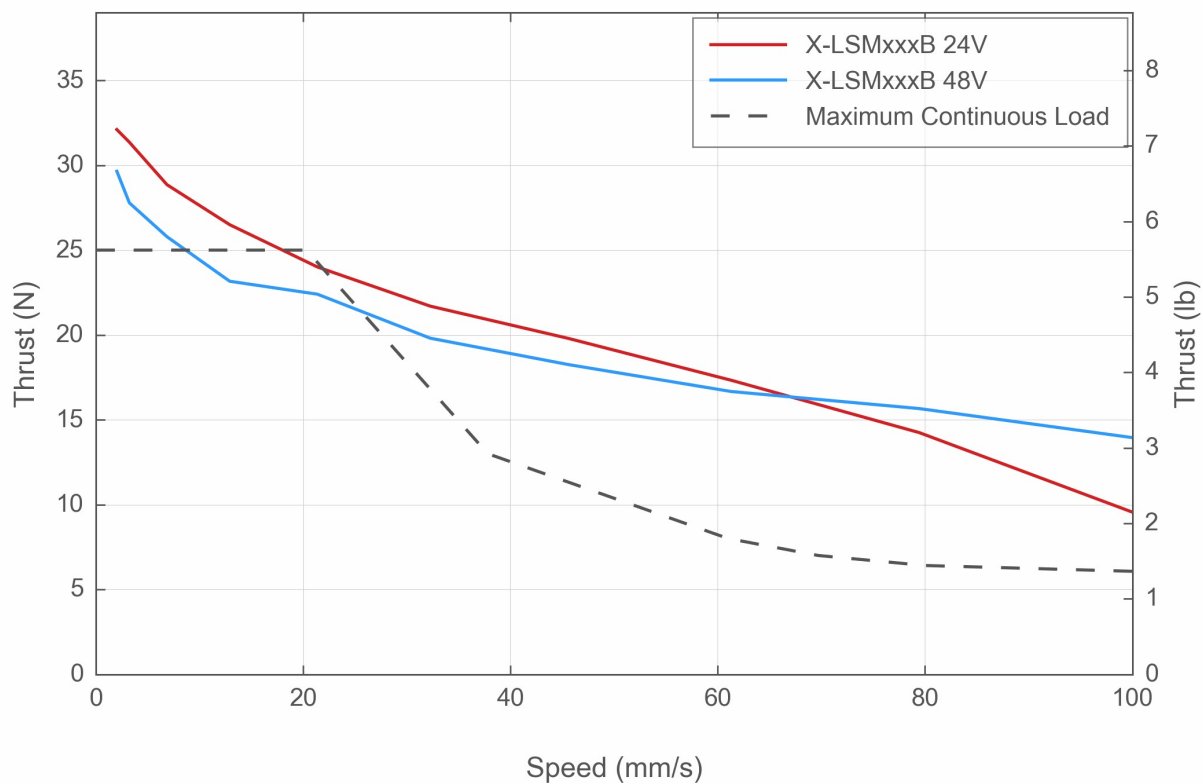
Thrust Speed Performance



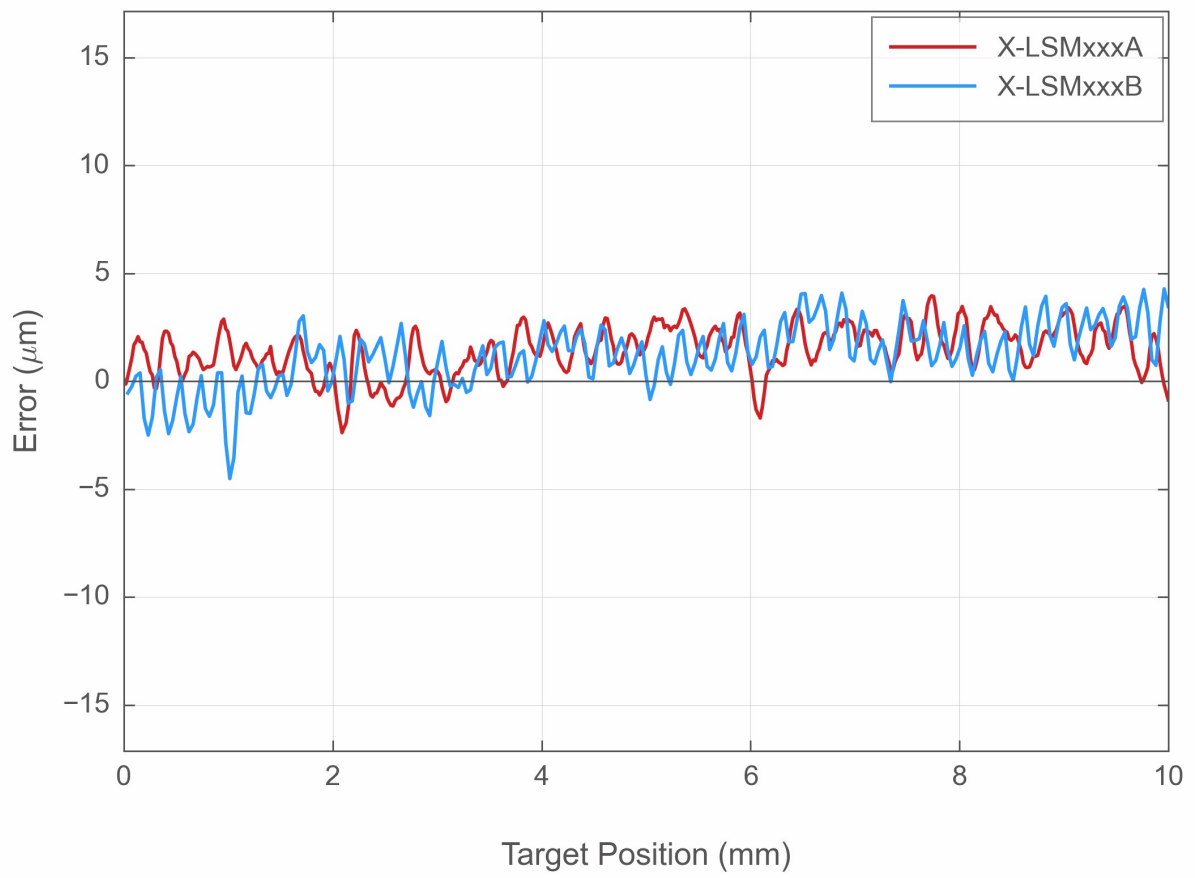
Thrust Speed Performance



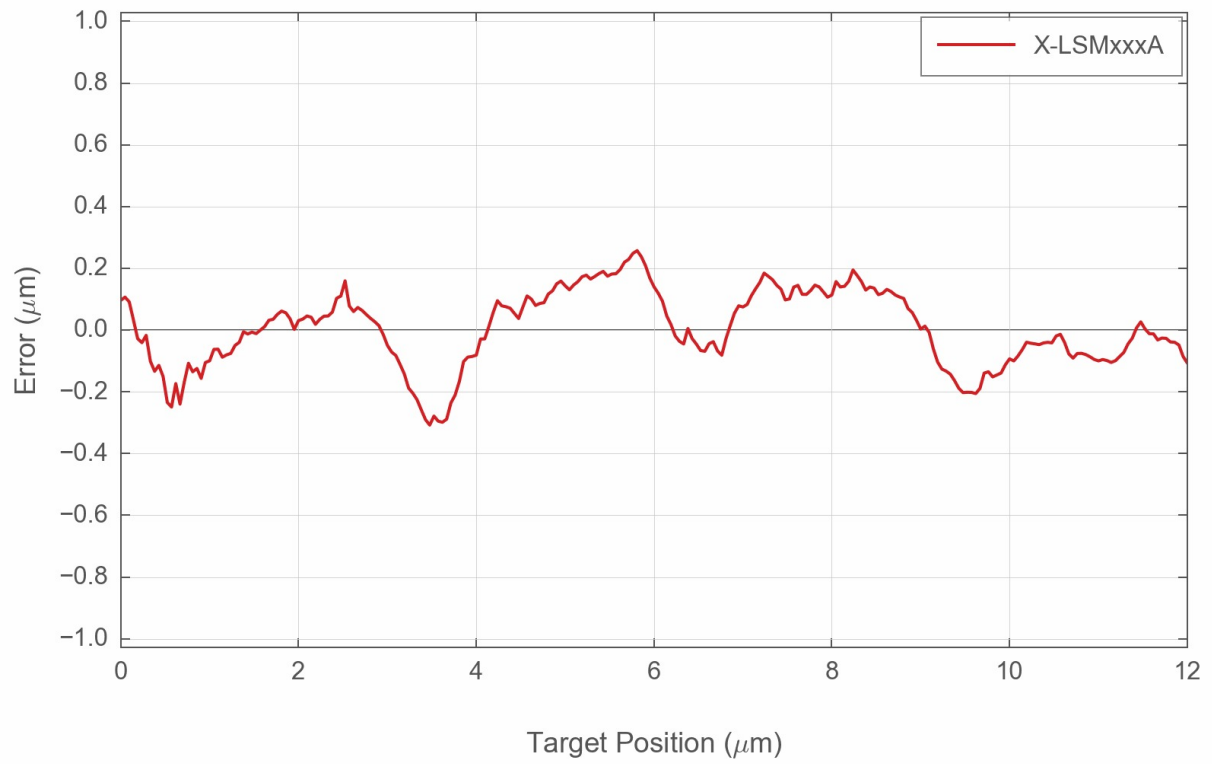
Thrust Speed Performance



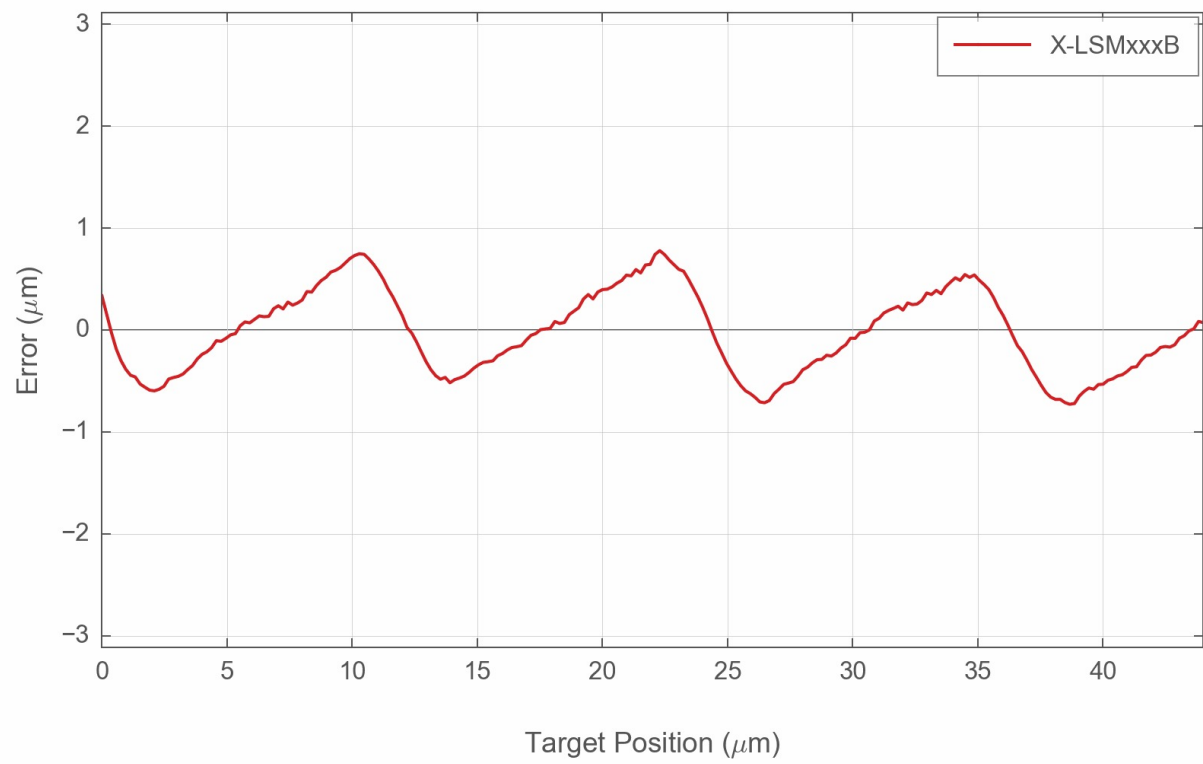
Typical Accuracy



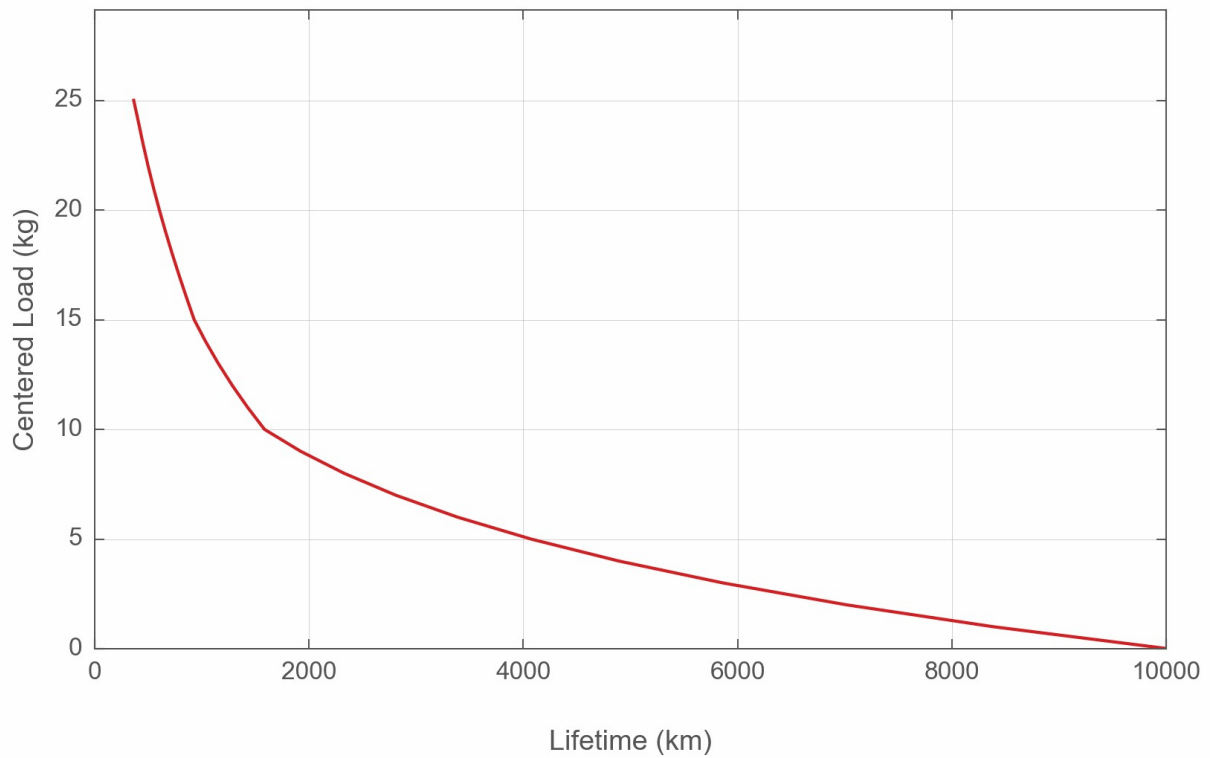
Typical Microstepping Accuracy



Typical Microstepping Accuracy



LSM Linear Bearing Lifetime



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